

**Claims**

What is claimed is:

- 5           1.       A method performed by an information handling system for processing a sequence of instructions that includes first and second instructions, wherein each of the first and second instructions is processable in a sequence of stages that includes first and second execution stages, and wherein the first instruction's second execution stage is processable substantially concurrent with processing the second instruction's first execution stage, comprising:
- 10               executing the first instruction during its second execution stage; and  
              executing the second instruction during a selected one of its first and second execution stages.
2.       The method of Claim 1, wherein executing the second instruction comprises:
- 15               executing the second instruction during the selected one of its first and second execution stages, in response to an encoding of the second instruction.
3.       The method of Claim 1, wherein executing the second instruction comprises:
- executing the second instruction during the selected one of its first and second execution
- 20               stages, in response to whether the second instruction is dependent on the first instruction.
4.       The method of Claim 3, wherein executing the second instruction comprises:
- executing the second instruction during its first execution stage in response to the second instruction being independent of the first instruction.
- 25               5.       The method of Claim 3, wherein executing the second instruction comprises:
- executing the second instruction during its second execution stage in response to the second instruction being dependent on the first instruction.

6. The method of Claim 5, wherein executing the second instruction comprises:  
executing the second instruction during its second execution stage in response to the  
second instruction being dependent on the first instruction, but only if the system includes a  
suitable resource for executing such instruction during its second execution stage.

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7. The method of Claim 1, wherein the sequence of stages includes multiple  
execution stages, including the first and second execution stages and at least one additional  
execution stage.

10 8. The method of Claim 7, wherein the additional execution stage precedes the first  
execution stage.

9. The method of Claim 7, wherein the additional execution stage follows the second  
execution stage.

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10. The method of Claim 7, wherein at least one additional execution stage precedes  
the first execution stage, and wherein at least one additional execution stage follows the second  
execution stage.

20 11. The method of Claim 1, wherein executing the first instruction comprises:  
executing the first instruction during its first and second execution stages.

12. The method of Claim 11, wherein the second instruction is executable in a single  
machine cycle of the system, and wherein the first instruction is executable in only multiple  
25 machine cycles of the system.

13. The method of Claim 1, wherein the sequence of stages is processed in one  
machine cycle of the system per stage.

30 14. The method of Claim 1, wherein the sequence of stages is the same for the first  
and second instructions.

15. A method performed by an information handling system in assembling a sequence of instructions that includes first and second instructions, wherein each of the first and second instructions is processable in a sequence of stages that includes first and second execution stages, and wherein the first instruction's second execution stage is processable substantially concurrent with processing the second instruction's first execution stage, comprising:

assembling the first instruction for execution during its second execution stage; and  
assembling the second instruction for execution during a selected one of its first and second execution stages.

16. The method of Claim 15, wherein assembling the second instruction comprises:  
assembling the second instruction during the selected one of its first and second execution stages, in response to an encoding of the second instruction.

17. The method of Claim 15, wherein assembling the second instruction comprises:  
assembling the second instruction during the selected one of its first and second execution stages, in response to whether the second instruction is dependent on the first instruction.

18. The method of Claim 17, wherein assembling the second instruction comprises:  
assembling the second instruction for execution during its first execution stage in response to the second instruction being independent of the first instruction.

19. The method of Claim 17, wherein assembling the second instruction comprises:  
assembling the second instruction for execution during its second execution stage in response to the second instruction being dependent on the first instruction.

20. The method of Claim 19, wherein assembling the second instruction comprises:  
assembling the second instruction for execution during its second execution stage in  
response to the second instruction being dependent on the first instruction, but only if the system  
is specified as including a suitable resource for executing such instruction during its second  
5 execution stage.

21. The method of Claim 15, wherein the sequence of stages includes multiple  
execution stages, including the first and second execution stages and at least one additional  
execution stage.

22. The method of Claim 21, wherein the additional execution stage precedes the first  
execution stage.

23. The method of Claim 21, wherein the additional execution stage follows the  
15 second execution stage.

24. The method of Claim 21, wherein at least one additional execution stage precedes  
the first execution stage, and wherein at least one additional execution stage follows the second  
execution stage.

25. The method of Claim 15, wherein assembling the first instruction comprises:  
assembling the first instruction for execution during its first and second execution stages.

26. The method of Claim 25, wherein the second instruction is executable in a single  
25 machine cycle of the system, and wherein the first instruction is executable in only multiple  
machine cycles of the system.

27. The method of Claim 15, wherein the sequence of stages is processable in one  
machine cycle of the system per stage.

28. The method of Claim 15, wherein the sequence of stages is the same for the first and second instructions.

29. An information handling system for processing a sequence of instructions that  
5 includes first and second instructions, wherein each of the first and second instructions is processable in a sequence of stages that includes first and second execution stages, and wherein the first instruction's second execution stage is processable substantially concurrent with processing the second instruction's first execution stage, comprising:

first circuitry for executing the first instruction during its second execution stage; and  
10 second circuitry for executing the second instruction during a selected one of its first and second execution stages.

30. The system of Claim 29, wherein the second circuitry is for executing the second instruction during the selected one of its first and second execution stages, in response to an  
15 encoding of the second instruction.

31. The system of Claim 29, wherein the second circuitry is for executing the second instruction during the selected one of its first and second execution stages, in response to whether the second instruction is dependent on the first instruction.

20 32. The system of Claim 31, wherein the second circuitry is for executing the second instruction during its first execution stage in response to the second instruction being independent of the first instruction.

25 33. The system of Claim 31, wherein the second circuitry is for executing the second instruction during its second execution stage in response to the second instruction being dependent on the first instruction.

34. The system of Claim 33, wherein the second circuitry is for executing the second instruction during its second execution stage in response to the second instruction being dependent on the first instruction, but only if the system includes a suitable resource for executing such instruction during its second execution stage.

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35. The system of Claim 29, wherein the sequence of stages includes multiple execution stages, including the first and second execution stages and at least one additional execution stage.

10 36. The system of Claim 35, wherein the additional execution stage precedes the first execution stage.

37. The system of Claim 35, wherein the additional execution stage follows the second execution stage.

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38. The system of Claim 35, wherein at least one additional execution stage precedes the first execution stage, and wherein at least one additional execution stage follows the second execution stage.

20 39. The system of Claim 29, wherein the first circuitry is for executing the first instruction during its first and second execution stages.

40. The system of Claim 39, wherein the second instruction is executable in a single machine cycle of the system, and wherein the first instruction is executable in only multiple  
25 machine cycles of the system.

41. The system of Claim 29, wherein the sequence of stages is processed in one machine cycle of the system per stage.

30 42. The system of Claim 29, wherein the sequence of stages is the same for the first and second instructions.

43. A computer program product, comprising:

apparatus from which a computer program is accessible by an information handling system, wherein the computer program is processable by the information handling system for causing the information handling system to assemble a sequence of instructions that includes first and second instructions, wherein each of the first and second instructions is processable in a sequence of stages that includes first and second execution stages, and wherein the first instruction's second execution stage is processable substantially concurrent with processing the second instruction's first execution stage, and wherein the assembling comprises:

assembling the first instruction for execution during its second execution stage; and assembling the second instruction for execution during a selected one of its first and second execution stages.

44. The computer program product of Claim 43, wherein assembling the second instruction comprises:

assembling the second instruction during the selected one of its first and second execution stages, in response to an encoding of the second instruction.

45. The computer program product of Claim 43, wherein assembling the second instruction comprises:

assembling the second instruction during the selected one of its first and second execution stages, in response to whether the second instruction is dependent on the first instruction.

46. The computer program product Claim 45, wherein assembling the second instruction comprises:

assembling the second instruction for execution during its first execution stage in response to the second instruction being independent of the first instruction.

47. The computer program product Claim 45, wherein assembling the second instruction comprises:

assembling the second instruction for execution during its second execution stage in response to the second instruction being dependent on the first instruction.

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48. The computer program product Claim 47, wherein assembling the second instruction comprises:

assembling the second instruction for execution during its second execution stage in response to the second instruction being dependent on the first instruction, but only if the system is specified as including a suitable resource for executing such instruction during its second execution stage.

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49. The computer program product of Claim 43, wherein the sequence of stages includes multiple execution stages, including the first and second execution stages and at least one additional execution stage.

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50. The computer program product of Claim 49, wherein the additional execution stage precedes the first execution stage.

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51. The computer program product of Claim 49, wherein the additional execution stage follows the second execution stage.

52. The computer program product of Claim 49, wherein at least one additional execution stage precedes the first execution stage, and wherein at least one additional execution stage follows the second execution stage.

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53. The computer program product Claim 43, wherein assembling the first instruction comprises:

assembling the first instruction for execution during its first and second execution stages.

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54. The computer program product Claim 53, wherein the second instruction is executable in a single machine cycle of the system, and wherein the first instruction is executable in only multiple machine cycles of the system.

5 55. The computer program product Claim 43, wherein the sequence of stages is processable in one machine cycle of the system per stage.

56. The computer program product Claim 43, wherein the sequence of stages is the same for the first and second instructions.

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